

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Withdrawn): An exhaust ring mechanism that contacts with a plasma region to subject an object to be processed to plasma processing in a processing chamber and provides an exhaust passage for process gas in the plasma region, the exhaust ring mechanism comprising:

an exhaust ring having a surface contacting with the plasma region; and
a magnetic field forming section which forms a magnetic field having a line of magnetic force, substantially parallel to the direction of the surface of the exhaust ring.

Claim 2 (Withdrawn): The exhaust ring mechanism according to claim 1, wherein the magnetic field forming section is formed so that at least part of the line of magnetic force passes the inside of the exhaust ring.

Claim 3 (Withdrawn): The exhaust ring mechanism according to claim 1, wherein the magnetic field forming section is configured of a plurality of magnets or electromagnets disposed along an inner periphery and an outer periphery on the surface of the exhaust ring.

Claim 4 (Canceled).

Claim 5 (Withdrawn): The exhaust ring mechanism according to claim 1, wherein the magnetic field forming section is configured of a plurality of magnets or electromagnets disposed along an inner peripheral edge and an outer peripheral edge on the lower surface of the exhaust ring.

Claim 6 (Canceled).

Claim 7 (Withdrawn): The exhaust ring mechanism according to claim 1, wherein the magnetic field forming section is configured of a plurality of magnets or a plurality of electromagnets disposed radially at a predetermined interval in the peripheral direction in the exhaust ring.

Claim 8 (Canceled).

Claim 9 (Withdrawn): The exhaust ring mechanism according to claim 1, wherein the magnetic field forming section is configured of a plurality of magnets or a plurality of electromagnets disposed radially at a predetermined interval in the peripheral direction at the lower surface side of the exhaust ring.

Claim 10 (Canceled).

Claim 11 (Withdrawn): The exhaust ring mechanism according to claim 1, wherein the exhaust ring mechanism has a magnetic field sealing section.

Claim 12 (Withdrawn): The exhaust ring mechanism according to claim 11, wherein the magnetic field sealing section is composed of a magnetic element.

Claim 13 (Withdrawn): A plasma processing apparatus for processing an object to be processed by plasma, comprising:

a holder which is disposed in a processing chamber and holds the object to be processed; and

an exhaust ring mechanism disposed between the holder and the processing chamber and having:

exhaust holes,

an exhaust ring having a surface contacting with the plasma region; and

a magnetic field forming section which forms a magnetic field having a line of magnetic force substantially parallel to the direction of the surface of the exhaust ring.

Claim 14 (Withdrawn): The plasma processing apparatus according to claim 13, wherein the magnetic field forming section is formed so that at least part of the line of magnetic force passes the inside of the exhaust ring.

Claim 15 (Withdrawn): The plasma processing apparatus according to claim 13, wherein the magnetic field forming section is configured of a plurality of magnets or electromagnets disposed along an inner periphery and an outer periphery on the surface of the exhaust ring.

Claim 16 (Canceled).

Claim 17 (Withdrawn): The plasma processing apparatus according to claim 13, wherein the magnetic field forming section is configured of a plurality of magnets or electromagnets disposed along an inner peripheral edge and an outer peripheral edge on the lower surface of the exhaust ring.

Claim 18 (Canceled).

Claim 19 (Withdrawn): The plasma processing apparatus according to claim 13, wherein the magnetic field forming section is configured of a plurality of magnets or a plurality of electromagnets disposed radially at a predetermined interval in the peripheral direction in the exhaust ring.

Claims 20-21 (Canceled).

Claim 22 (Withdrawn): The plasma processing apparatus according to claim 14, wherein the magnetic field forming section is configured of a plurality of magnets or a plurality of electromagnets disposed radially at a predetermined interval in the peripheral direction at the lower surface side of the exhaust ring.

Claim 23 (Withdrawn): The plasma processing apparatus according to claim 13, wherein the exhaust ring mechanism has a magnetic field sealing section.

Claim 24 (Withdrawn): The plasma processing apparatus according to claim 23, wherein the magnetic field sealing section is composed of a magnetic element.

Claim 25 (Withdrawn): A deposit shield mechanism that is in a processing chamber to protect an inner wall of the processing chamber and is in contact with a plasma region where an object to be processed is subjected to plasma processing and with an exhaust passage of process gas in the plasma region, the deposit shield mechanism comprising:

a magnetic field forming section which forms, at the end that is in contact with the plasma region, a magnetic field having a line of magnetic force substantially parallel to the direction of an electrode surface which forms the plasma.

Claim 26 (Withdrawn): The deposit shield mechanism according to claim 25, wherein the magnetic field forming section is formed so that at least part of the line of magnetic force passes the upper part of the deposit shield.

Claim 27 (Withdrawn): The deposit shield mechanism according to claim 25, wherein the magnetic field forming section is configured of a plurality of magnets or a plurality of electromagnets disposed along an inner periphery and an outer peripheral edge provided in the upper part of the deposit shield.

Claim 28 (Withdrawn): The deposit shield mechanism according to claim 26, wherein the magnetic field forming section is configured of a plurality of magnets or a plurality of electromagnets disposed at a predetermined interval in the peripheral direction in the upper part of the deposit shield.

Claim 29 (Currently Amended): A plasma processing apparatus comprising:
a plasma processing chamber in which plasma processing is to be performed on a substrate to be processed;
a susceptor which is disposed in the plasma processing chamber and on which ~~[[a]]~~
the substrate to be processed is mounted;
an exhaust mechanism which exhausts the plasma processing chamber from beneath the susceptor; ~~[[and]]~~

an exhaust ring formed in an annular shape to surround the susceptor, the exhaust ring having a plurality of exhaust holes which extend linearly, and which are arranged in concentric rows such that opening areas of the exhaust holes vary from one concentric row to another to increase from an innermost one of the concentric rows to an outermost one thereof; and

a plurality of magnets arranged at regular intervals in a circumferential direction of the exhaust ring, and having magnetic poles which are set such that magnets act in the circumferential direction of the exhaust ring to cause plasma to be sealed in the exhaust ring.

Claim 30 (Original): The plasma processing apparatus according to claim 29, wherein at least three types of exhaust holes differing in the opening area are disposed in the exhaust ring so that the opening area is gradually increased from the inner side to the outer side of the exhaust ring.

Claim 31 (Previously Presented): The plasma processing apparatus according to claim 29, wherein the exhaust ring has a plate thickness which concentrically varies in degrees in accordance with the opening area of the exhaust holes.

Claims 32-33 (Canceled)

Claim 34 (Previously Presented): The plasma processing apparatus according to claim 29, wherein the exhaust holes are circular holes each of which linearly extends, and has a diameter which is constant from an upper end of said each hole to a lower end thereof, and the diameter of the exhaust holes of the largest opening area disposed at the outermost side is 5 to 20 mm.

Claim 35 (Currently Amended): The plasma processing apparatus according to claim 29, wherein a plasma is generated in the vacuum processing chamber, and the substrate is processed by etching with plasma generated in the vacuum processing chamber.

Claim 36 (Currently Amended): An exhaust ring mechanism disposed in a plasma processing chamber of a plasma processing apparatus, formed in an annular shape to surround a susceptor on which a substrate to be processed is mounted, and having a plurality of exhaust holes, the plasma processing chamber being provided as a chamber in which plasma processing is performed on the substrate,

wherein the exhaust holes have circular cross sections, linearly extend, and are arranged such that opening areas of the exhaust holes vary from one concentric row to another to increase from an innermost one of the concentric rows to an outermost one thereof, and

wherein a plurality of magnets are arranged at regular intervals in a circumferential direction of the exhaust ring, and have magnetic poles which are set such that magnets act in the circumferential direction of the exhaust ring to cause plasma to be sealed in the exhaust ring.

Claim 37 (Original): The exhaust ring mechanism according to claim 36, wherein at least three types of exhaust holes differing in the opening area are disposed so that the opening area is gradually increased from the inner side to the outer side.

Claim 38 (Previously Presented): The exhaust ring mechanism according to claim 36, wherein the exhaust plate has a plate thickness which concentrically varies in degrees in accordance with the opening area of the exhaust holes.

Claims 39-40 (Canceled).

Claim 41 (Previously Presented): The exhaust ring mechanism according to claim 36, wherein the exhaust holes are circular holes each of which linearly extends, and has a diameter which is constant from an upper end of said each hole to a lower end thereof, and the diameter of the exhaust holes of the largest opening area disposed at the outermost side is 5 to 20 mm.